

**Rejection of Claims 1-9, 11, and 14-20 for Obviousness
under 35 U.S.C. § 103(a)**

In the Office Action dated December 12, 2002, claims 1-9, 11, and 14-20 were rejected as being unpatentable under U.S.C. §103(a) in view of the combination of Sibilia et al. U.S. Patent No. 5,310,775 with Beall et al. U.S. Patent No. 5,578,672, Ellsworth U.S. Patent No. 5,962,553, Kawasami et al. U.S. Patent No. 4,810,734 and Vaia et al. U.S. Patent No. 5,955,535.

Applicants submit that none of the cited references, either alone or in proper combination, can render claims 1-9, 11, and 14-20 unpatentable for obviousness. The Office Action indicated that persons of ordinary skill in the technology involved here would have found obvious from the disclosures of Sibilia and Beall to have compounded a fluoroplastic with a nanoclay to produce a compound having improved electrical insulating properties. The Office Action stated that Beall teaches fluoroplastics as being a suitable matrix polymer. In fact, however, Beall nowhere discloses or suggests that fluoroplastics should, or even could, be compounded with a nanoclay to produce a compound having improved electrical insulating properties. Beall's teachings are instead limited to fluoroelastomers, which as discussed in more detail below, are entirely distinguished

from fluoroplastics in chemical structure and in their respective properties.

The general teachings of the field of chemistry involved here recognize that fluoroplastics and fluoroelastomers are two different types of fluoropolymers. See John Scheirs, Fluoropolymers (2001) (website excerpt submitted herewith). At the very least, therefore, Beall's references to fluoroelastomers cannot be construed as also encompassing fluoroplastics, such as, for example, polyvinylidene fluoride (PVDF) and the other fluoroplastics set forth in the applicants' specification (see, for example, the present specification at pages 2-3).

Applicants submit that the combination of Beall and Sibilgia do not, and cannot, render claims 1-9, 11 and 14-20 obvious because neither of Beall and Sibilgia discloses or suggests a composition that includes (a) a fluoropolymeric base polymer and (b) a nanoclay additive and that is non-dripping and flame retardant, as specifically recited in the preamble of claim 1 (and therefore also a limitation of each of its dependent claims 2-9, 11 and 14-20). Similarly, none of the Vaia, Kawasami and Ellsworth patents discloses or suggests a non-dripping and flame retardant composition that includes (a) a fluoropolymeric base

polymer and (b) a nanoclay additive. Absent any teaching or suggestion that compounding (a) a fluoropolymeric base polymer and (b) a nanoclay additive would, or could, produce a composition that is non-dripping and flame retardant, none of the cited references can render claims 1-9, 11 and 14-20 are unpatentable for obviousness.

**Rejection of Claims 10, 12 and 13 for Obviousness
under 35 U.S.C. §103(a)**

Claims 10, 12 and 13 were also rejected in the December 12, 2001 Office Action under 35 U.S.C. § 103(a) as being unpatentable for obviousness in view of the combination of Beall, Kawasami, Ellsworth, Vaia and Sibilia as applied to claims 1-9, 11 and 14-20, with Kutnyak U.S. Patent No. 4,356,284 and Thuilliez U.S. Patent No. 6,054,538.

As set forth above, none of the Sibilia, Beall, Ellsworth, Kawasami and Vaia patents can render claims 1-9, 11 and 14-20 unpatentable for obviousness because they are devoid, both individually and in combination, of any teaching or suggestion that compounding (a) a fluoropolymeric base polymer with (b) a nanoclay additive would, or could, produce a composition that is non-dripping and flame retardant. Furthermore, neither of Kutnyak and Thuilliez discloses or suggests a non-dripping, flame retardant composition that comprises (a) a fluoropolymeric

base polymer and (b) a nanoclay additive. Applicants therefore submit that claims 10, 12 and 13, which either modify or add further limitations to the composition defined in claim 1, cannot be rendered obvious by any or all of Sibilia, Beall, Ellsworth, Kawasami, Vaia, Kutnyak and Thuilliez.

Enablement Objection under 35 U.S.C. §112

In the December 12, 2001 Office Action, the written description was objected as allegedly failing to provide a precise description of the nanoclay additive recited in the claims. Applicants submit that the specification sets forth a more than adequate description that would readily enable persons skilled in the technology involved here to discern and employ the nanoclay additive recited in the claims. In this regard, the present specification states, in the Summary of the Invention section:

The preferred nanoclay additive is selected from the group consisting of synthetic silicate montmorillonites, natural layered silicate montmorillonites and a layered alumina-silicate. The individual platelets of the preferred nanoclay additive are approximately 1 micron in diameter. The nanoclay additive is preferably chemically modified to increase its hydrophobicity.

(Specification at page 5). Applicants submit that persons skilled in the technology involved here would not require undue experimentation to discern and employ the nanoclay additive recited in the claims, and that the written description therefore satisfies the enablement requirements of 35 U.S.C. §112.

* * * * *

In view of the foregoing amendments and remarks, applicants submit that claims 1-20 and new claims 21-24 are allowable. The Examiner is invited to telephone the applicants' undersigned attorney at (312) 775-8123 if any unresolved matters remain.

Please charge any fees incurred in connection with this submission to Deposit Account No. 13-0017.

Respectfully submitted,



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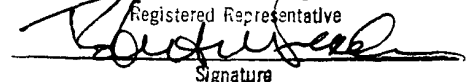
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Date of Signature

ATTACHMENT A
VERSION WITH MARKINGS TO SHOW CHANGES MADE

The following new claims 21-24 have been added to the present application:

21. The composition of claim 1 further comprising:

(c) melamine octa-molybdate.

22. The composition of claim 21 wherein said melamine octa-molybdate is present in an amount of 1-50 percent by weight of the fluoropolymeric base polymer.

23. A non-dripping, flame retardant fluoropolymeric composition comprising:

(a) polyvinylidene fluoride base polymer;
and

(b) a nanoclay additive selected from the group consisting of synthetic silicate montmorillonites, natural layered silicate montmorillonites and a layered alumina-silicate.

24. The composition of claim 23 wherein
said nanoclay additive is present in an amount of
.1-25 percent by weight of the polyvinylidene
fluoride base polymer.